

# Stream Line

City of Indianapolis / Department of Public Works / Clean Stream Program

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## Statement Of Purpose

The Indianapolis Clean Stream Team is overseeing many projects to keep raw sewage out of our waterways and improve the quality of life in our neighborhoods. Stream Line is published quarterly to keep you informed about the city's progress in reducing raw sewage overflows and restoring the health of our streams.

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## IMPROVEMENTS UNDERWAY AT TREATMENT PLANTS

*New basins will reduce bypasses during wet weather events*

Although it will take up to 20 years to fully implement the city's plan for controlling raw sewage overflows into area streams, several "early action projects" are already underway to clean our waterways. Some of these projects involve improvements at the city's wastewater treatment plants.



### Flow Equalization Basins

Flow equalization basins and a new pumping station will reduce bypasses and overflows at both the Belmont and Southport Advanced Wastewater Treatment (AWT) plants.

Belmont, the older of the two plants, receives the vast majority of the city's wet weather flows. The Belmont basins will reduce the frequency and volume of bypasses to the White River by temporarily storing flows during wet weather, until the plant has capacity to treat the flows.

The \$15.3 million wet weather upgrades at the Belmont AWT plant include two earthen-walled, double-lined flow equalization basins and two combination concrete storage tanks / primary clarifiers. Combined together, these facilities will store up to 38 million gallons of wastewater.

(see "Improvements" page 3)

## E-mail, Telephone Hotline Provide Overflow Warnings

When it comes to protecting Indianapolis residents from raw sewage overflows, projects to clean up waterways go hand-in-hand with public education on the hazards of urban waterways.

That's why the City of Indianapolis has taken the lead in informing residents about raw sewage overflows from the city's antiquated sewer system.

In 2002, Indianapolis became the first Indiana community to issue alerts when sewage overflows were predicted due to rain or snow forecasts. Hundreds of citizens now access these alerts through e-mail or the city's telephone hotline.

Both methods warn citizens when overflows are expected and educate them about the hazards of sewage in our streams.

(see "Notification" page 4)

## Health and Safety Tips

To protect your health, take the following protective actions when recreating along city streams:

- Avoid contact with urban streams, especially during and three days after rain.
- Alter recreational activities to ones that do not contact urban waterways. For example, try walking or biking along a stream rather than swimming, wading or water skiing.
- Always wash your hands after contacting water in urban streams, especially before eating.
- Use a waterless hand sanitizer at outings that occur near urban streams.

Find us on the Web at: [www.indycleanstreams.org](http://www.indycleanstreams.org)

## From the Director...

**James Garrard**

Director of Public Works



**A**s we look forward to completing a plan to significantly reduce the number of raw sewage overflows into Indianapolis waterways, I want to extend a personal invitation to you to participate in the process. While work to reduce these disgusting overflows is already underway, we still need your input and involvement.

In June, the city will begin hosting meetings to give you a look at cleanup alternatives for each of the five sewage-impacted watersheds: Fall Creek, Pogues Run, Pleasant Run, White River, and Eagle Creek. And while we welcome your input at any stage of the process, this will be your first formal opportunity to review specific alternatives for restoring waterways in your part of Indianapolis.

Later this fall, we anticipate a month-long public comment period on the revised long-term control plan, which we must submit to state and federal regulators. There will be a formal public hearing during this time, as well.

Your comments and suggestions are welcomed at any point during the next few months as the city finalizes its plan. Visit our Web site at [www.indycleanstreams.org](http://www.indycleanstreams.org) for more information. You can ask a question, make a comment, or request a speaker for your next neighborhood meeting. As we proceed to finalize our plans, we'll use the Web to publicize upcoming meetings and to address your comments or questions.

We want to make sure you have the best possible understanding of options for reducing the number of raw sewage overflows, how much they might cost, and the benefits they will ultimately achieve. We've said it all along and continue saying it today: we cannot do this alone. A program of this magnitude requires careful planning, due diligence, and of course, upholding our commitment and responsibility to giving you ample opportunity to participate in the process.

Thank you for your time and, just as importantly, your input.

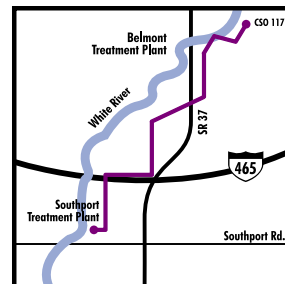
## PIPELINE SHOULD STEM OVERFLOWS

You don't often hear the words "diamond in the rough" used to describe wastewater treatment facilities. But that's how the Southport Advanced Wastewater Treatment Plant is being billed for its potential role in reducing sewage overflows into the White River.

Heavy rainfalls often overwhelm the Belmont Advanced Wastewater Treatment Plant, which receives most of its flow from the city's combined storm and sanitary sewer system.

A new connection to the Southport plant should bring significant relief to Belmont.

Southport currently receives most of its flow from the separate sewer areas, which aren't as affected by wet weather. As a result, when Belmont is overwhelmed, Southport often has excess capacity that the city cannot use.



The Belmont-to-Southport Interplant Connection will create a 7-mile pipeline between the two facilities. The pipeline will carry as much as 150 million gallons of wastewater per day to Southport. Southport peak treatment capacity also will be expanded from 150 to 375 million gallons per day.

"This project has been needed for a long time and it's good to know that it's moving forward," said John Morgan, a project manager with the Department of Public Works. "The connection's main purpose will be to balance flows between the two plants during peak periods."

## Ozonation Will Benefit Fish

Aquatic life should soon benefit from higher oxygen levels in the White River as the city returns to high purity oxygen treatment and ozonation for disinfection at its advanced wastewater treatment plants.

Ozone will replace chlorine as the city's disinfection method, in the final step before treated effluent is discharged to the river. City engineers say ozone is superior at removing viruses and is effective against harmful waterborne organisms. In addition, ozone's chief by-product is oxygen, which when added to the river will benefit fish and other aquatic life.

Indianapolis was the first large U.S. city to ozonate wastewater in the 1980s. Ozonation was effective, but due to costs and maintenance issues, it was abandoned after 1994. Technology improvements have recently made ozonation more reliable and cost effective with less maintenance. It is estimated that the \$18-20 million oxygen and ozonation systems will be operating in 2006.

## IMPROVEMENTS *(continued from page 1)*

The \$12.8 million Southport upgrade aims to reduce combined sewage overflows to Little Buck Creek and the White River. The wet weather improvements at the Southport AWT plant include a new 75 million gallon/day raw sewage pump station, new 48-inch force mains to convey flows, and an earthen-walled double-lined equalization basin for storage and later treatment.

The two-plant project was designed by HNTB Corporation of Indianapolis and is being constructed by Bowen Engineering Corporation, which began work in January. The project is scheduled for completion in June 2006.

"This project will greatly help manage current flows reaching the city's AWT plants that now cause bypasses or overflows," said Jim Parks, Senior Project Engineer for DPW's Engineering Division. "It will improve water quality by capturing between 1.5 and 2.5 billion gallons of combined sewage for later treatment that otherwise would have added pollution to the river."

## Bio-Roughing System Clarification (BRSC) Pilot Study

While those short-term improvements are underway, the city has been studying long-term wet weather treatment options at Belmont. A Bio-Roughing System Clarification (BRSC) Pilot Study was conducted over a 6-month period to field test intermediate clarification using conventional and enhanced high rate technologies.

With a quick startup time and relatively small footprint, these technologies have the operational flexibility to treat peak wet weather flows at the Belmont plant.

Belmont's secondary treatment capacity can be doubled by uncoupling the two-stage nitrification process and inserting intermediate clarifiers between the bio-roughing towers and the oxygen nitrification system (see diagram). During wet weather, flows entering the plant could take two different routes – with each providing biological treatment and disinfection before discharge to the White River.

The pilot study by Shrewsbury & Associates, with subconsultants Bernardin Lochmueller & Associates, Inc. and Greeley and Hansen LLP, was finalized earlier this year. Construction could be underway by 2007, with an estimated cost of nearly \$56 million.

## Steps of Wastewater Treatment

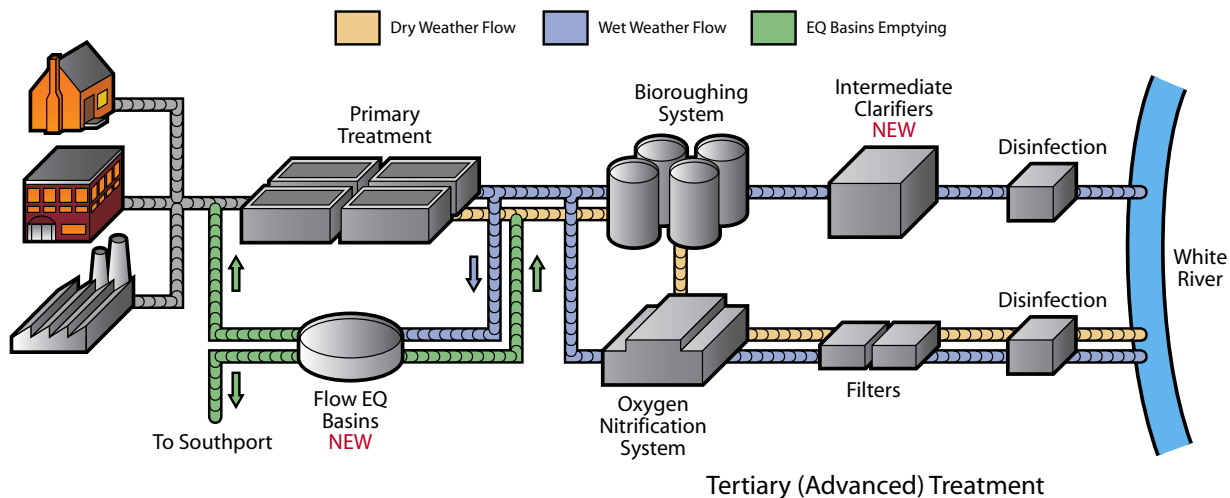
**Wastewater sources:** wastewater enters the plant from many sources, including homes, businesses and industry

**Primary treatment:** trash, grit and solids are removed from the wastewater

**Secondary treatment:** waste and other organic matter is consumed by bacteria and other organisms in the bioroughing and oxygen nitrification systems.

**Tertiary (advanced) treatment:** filters remove additional pollutants to create a high-quality effluent.

**Disinfection:** kills any harmful organisms before discharge to the White River.



The diagram above illustrates how the Belmont Advanced Wastewater Treatment Plant will manage both wet-weather and dry-weather flows in the coming years. During dry weather, flows follow the gold-colored path, moving from primary treatment to secondary treatment (bioroughing/oxygen nitrification systems), then to tertiary treatment (filters), followed by disinfection. During wet weather, flows follow the blue-colored path, moving from primary treatment to secondary treatment (bioroughing), then to tertiary treatment (oxygen nitrification system/filters), followed by disinfection. The new intermediate clarifiers will enable the city to "uncouple" the bioroughing and oxygen nitrification systems during peak wet weather flows — sending some flows through ONS, filtration and disinfection, and then on to advanced treatment and disinfection, and the remaining wet-weather flows through the bioroughing system, new clarifiers, and disinfection. In addition, the new flow equalization basins will help capture and store peak flows for later treatment. The green path illustrates three different options for emptying the flow EQ basins after a wet weather period.

## NOTIFICATION (continued from page 1)

“Our goal is to keep people out of streams, particularly when it’s most unhealthy to be there, which is shortly after a rainfall,” said Victoria Cluck, Strategic Planning Administrator for the Indianapolis Department of Public Works. “We see the notification program as a proactive way for people to protect themselves and their families.”

A state rule required 105 Indiana communities to establish similar notification programs this year. The Indianapolis program offers warnings in two ways:

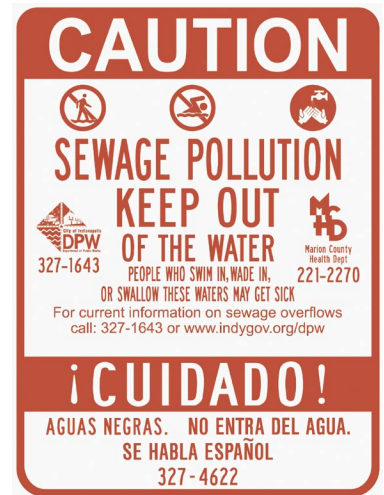
**E-mail:** Citizens can sign up for e-mail notification at [www.indycleanstreams.org](http://www.indycleanstreams.org) by clicking on “Public Notification Program.” The e-mails are sent to about 300 people when weather forecasts indicate a strong chance that storms might cause an overflow.

**Telephone Hotline:** By calling (317) 327-1643, citizens can access current information about raw sewage overflows in area streams. During and three days after a storm, the hotline plays a recorded warning to stay away from waterways where sewage overflow signs are posted.

DPW and the Marion County Health Department have posted signs near sewage outfalls, parks, and public access points to warn residents that sewage can pollute waterways during wet weather. The city also notifies residents of the program through a water bill insert and mailings to community organizations, schools and day care centers.

Starting this year, the city-owned cable station, Channel 16 (WCTY-TV), will be running sewage overflow warnings, as well.

“The number of people signed up for the public notification program continues to grow,” added Cluck. “We believe this is a simple yet important program that everyone can utilize to reduce their risk when around urban streams.”



## INDIANAPOLIS CLEAN STREAM TEAM

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